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10/801,903	03/16/2004	James Scott Rhodes JR.	PCCR122524	3403

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EXAMINER	
JANAKIRAMAN, NITHYA	
ART UNIT	**PAPER NUMBER**
2123	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/07/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)
	10/801,903	RHODES ET AL.
	Examiner	Art Unit
	Nithya Janakiraman	2123

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-42* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This action is in response to the application filed on March 16, 2004, with Provisional Application date of November 5, 2003. Claims 1-42 are presented for examination.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

2. Regarding claim 10, the phrase "pieces of geometry" is vague and indefinite. As geometry is an abstract concept, it is unclear as to how components can correspond to pieces of geometry.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-10, 13, 15-27, and 31-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,729,463 Koenig et al. (hereinafter Koenig) in view of US Patent 6,487,525, Hall et al. (hereinafter Hall).

4. Koenig teaches a system for designing a vehicle body using tessellated representations of components and location information (see column 1). However, Koenig fails to teach the detection and avoidance of component interference.

5. Hall teaches the design of a vehicle HVAC air handling assembly, wherein the vehicle takes into account other vehicle systems, and determines a sufficient dimensional distance or clearance between them (see columns 7, 8).

6. Koenig and Hall are analogous art because they are both related to the design of vehicles and/or automotive components.

7. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the interference detection of Hall with the vehicle design system of Koenig, motivated by the desire to "ensure that it is spatially compatible with a particular environment, while still complying with predetermined functional criteria" (see Hall, column 1).

8. Regarding independent claim 1, Koenig and Hall teach:

A method for generating frame designs for manufacturing a vehicle, the method comprising (see Koenig, column 1, lines 50-61):

(a) obtaining a specification of one or more components to be mounted on a frame of a vehicle (see Hall, column 6, lines 7-15),

(b) obtaining processing data corresponding to each of the one or more components to be mounted on the frame of the vehicle (see Koenig, column 2, lines 43-46), wherein the processing data includes location information corresponding to a logical starting position for attempting to locate a component on the frame and a range of additional positions to locate the component and three-dimensional data corresponding to a tessellated representation of the component (see Koenig, column 6, lines 59-61);

(c) selecting a component of the one or more components and setting a current position as the logical starting position in the processing data (see Koenig, column 8, lines 15-18);

(d) determining whether the tessellated representation of the selected component located at the current position interferes with the tessellated representation of any other components already configured to the frame (see Hall, column 4, lines 1-3);

(e) if an interference occurs, setting a next position in the range of additional positions defined in the processing data as the current position and repeating (d) (see Hall, column 7, lines 1-9);

(f) if no interference occurs, configuring the position of the selected component as the current position (see Koenig column 6, lines 59-61);

(g) repeating (d)-(f) for any remaining components of the one or more components (see Koenig column 6, lines 3-8); and

(h) generating a frame design corresponding to the configured positions for each of the one or more components (see Koenig column 1).

9. Regarding claim 2, Koenig and Hall teach:

The method as recited in claim 1, wherein determining whether the tessellated representation (see Koenig, Figure 7) of the selected component located at the current position interferes with the tessellated representation of any other components already configured to the frame (see Hall, column 7, lines 1-9) includes iteratively comparing whether any tessellated planes within the three-dimensional data of the selected component intersect with any tessellated planes with the three-dimensional data of any components already configured to the frame (see Hall, column 7, lines 32-42).

10. Regarding claim 3, Koenig and Hall teach:

11. The method as recited in claim 1, wherein determining whether the tessellated representation of the selected component located at the current position interferes with the tessellated representation of any other components already configured to the frame includes determining whether the selected component located at the current position is located within another configured component (see Hall column 7, lines 1-9).

12. Regarding claim 4, Koenig and Hall teach:

The method as recited in claim 1, wherein obtaining a specification of one or more components to be mounted on a frame of a vehicle includes obtaining a list of required components from a user interface (see Hall, column 6, lines 7-15).

13. Regarding claim 5, Koenig and Hall teach:

The method as recited in claim 1, wherein the logical starting position corresponds to a dimensional measurement relative to the frame (see Hall, lines 62-67).

14. Regarding claim 6, Koenig and Hall teach:

The method as recited in claim 1, wherein the logical starting position corresponds to a dimensional measurement relative to another component (see Hall, column 8, lines 1-9).

15. Regarding claim 7, Koenig and Hall teach:

The method as recited in claim 1, wherein the range of additional positions to locate the component includes a maximum dimensional measurement in a first direction from the logical starting position (see Hall, column 7, lines 62-67).

16. Regarding claim 8, Koenig and Hall teach:

The method as recited in claim 7, wherein the range of additional positions to locate the component includes a maximum dimensional measurement in a second direction from the logical starting position (see Hall, column 7, lines 62-67).

17. Regarding claim 9, Koenig and Hall teach:

The method as recited in claim 1, wherein prior to configuring the position of the selected component, the method further comprising:

determining whether the selected component fits with any existing holes on the frame for attaching a component at the current location (see Hall Figure 2, column 7);

if the selected component does fit with any existing holes on the frame for attaching a component, determining whether the tessellated representation of the selected component located at a position corresponding to a matching hole interferes with the tessellated representation of any other components already configured to the frame (see Hall, column 7, lines 32-41);

if no interference occurs, configuring the position of the component as the position corresponding to a matching hole (see Hall, column 8, lines 1-9).

18. Regarding claim 10, Koenig and Hall teach:

The method as recited in claim 1, wherein each of the one or more components corresponds to one or more pieces of geometry (see Koenig, column 2, lines 43-56).

19. Regarding claim 13, Koenig and Hall teach:

The method as recited in claim 1, wherein generating a frame design corresponding to the configured positions for each of the one or more components includes generating a three-dimensional representation of the frame design (see Koenig, column 2, lines 24-34).

20. Regarding claim 15, Koenig and Hall teach:

A computer-readable medium having computer-executable instructions for performing the method recited in claim 1 (see Koenig, column 2, lines 42-46).

21. Regarding claim 16, Koenig and Hall teach:

A computer system having a processor, a memory and an operating environment, the computer system for performing the method recited in claim 1 (see Koenig, column 2, lines 42-46).

22. Regarding claim 17, Koenig and Hall teach:

A method for generating frame designs for manufacturing a vehicle (see Koenig, column 1, lines 50-61), the method comprising:

(a) obtaining a specification of one or more components to be mounted on a frame of a vehicle (see Hall, column 6, lines 7-15),

(b) obtaining processing data corresponding to each of the one or more components to be mounted on the frame of the vehicle (see Koenig, column 2, lines 43-46), wherein the processing data includes location information corresponding to a logical starting position for attempting to locate a component on the frame and a range of additional dimensional positions to locate the component and three-dimensional data corresponding to a tessellated representation of the component (see Koenig, column 6, lines 59-61);

(c) selecting a component of the one or more components and setting a current position as the starting position in the processing data (see Koenig, column 8, lines 15-18);

(d) configuring a position for the selected component based upon determining whether a tessellated representation of the selected component interferes with the tessellated representation of any other components already configured to the frame (see Hall, column 4, lines 1-3);

(g) repeating (d) for any remaining components of the one or more components (see Koenig column 6, lines 3-8); and

(h) generating a frame design corresponding to the configured positions for each of the one or more components (see Koenig column 1).

23. Regarding claim 18, Koenig and Hall teach:

The method as recited in claim 17, wherein determining whether a tessellated representation (see Koenig, Figure 7) of the selected component interferes with the tessellated representation of any other components already configured to the frame (see Hall, column 7, lines 1-9) includes iteratively comparing whether any tessellated planes within the three-dimensional data of the selected component intersect with any tessellated planes with the three-dimensional data of any components already configured to the frame (see Hall, column 7, lines 32-42).

24. Regarding claim 19, Koenig and Hall teach:

25. The method as recited in claim 17, wherein determining whether the tessellated representation of the selected component located at the current position interferes with the tessellated representation of any other components already configured to the frame includes determining whether the selected component located at the current position is located within another configured component (see Hall column 7, lines 1-9).

26. Regarding claim 20, Koenig and Hall teach:

The method as recited in claim 17, wherein obtaining a specification of one or more components to be mounted on a frame of a vehicle includes obtaining a list of required components from a user interface (see Hall, column 6, lines 7-15).

27. Regarding claim 21, Koenig and Hall teach:

The method as recited in claim 17, wherein the logical starting position corresponds to a dimensional measurement relative to the frame (see Hall, lines 62-67).

28. Regarding claim 22, Koenig and Hall teach:

The method as recited in claim 17, wherein the logical starting position corresponds to a dimensional measurement relative to another component (see Hall, column 8, lines 1-9).

29. Regarding claim 23, Koenig and Hall teach:

The method as recited in claim 17, wherein the range of additional positions to locate the component includes a maximum dimensional measurement in a first direction from the logical starting position (see Hall, column 7, lines 62-67).

30. Regarding claim 24, Koenig and Hall teach:

The method as recited in claim 23, wherein the range of additional positions to locate the component includes a maximum dimensional measurement in a second direction from the logical starting position (see Hall, column 7, lines 62-67).

31. Regarding claim 25, Koenig and Hall teach:

The method as recited in claim 17, further comprising configuring a new position for the selected component based upon determining whether the selected component fits with any existing holes on the frame for attaching a component (see Hall Figure 2, column 7).

32. Regarding claim 26, Koenig and Hall teach:

The method as recited in claim 25, wherein configuring a new position for the selected component based upon determining whether the selected component fits with any existing holes on the frame for attaching a component includes:

determining whether the selected component fits with any existing holes on the frame for attaching a component at the previously configured position (see Hall Figure 2, column 7);

if the selected component fits with any existing holes on the frame for attaching a component, determining whether the tessellated representation of the selected component located at a position corresponding to a matching hole interferes with the tessellated representation of any other components already configured to the frame (see Hall, column 7, lines 32-41);

if no interference occurs, configuring the position of the component as the position corresponding to a matching hole (see Hall, column 8, lines 1-9).

33. Regarding claim 27, Koenig and Hall teach:

The method as recited in claim 17, wherein generating a frame design corresponding to the configured positions for each of the one or more components includes generating a three-dimensional representation of the frame design (see Koenig, column 2, lines 24-34).

34. Regarding claim 31, Koenig and Hall teach:

A computer-readable medium having computer-executable instructions for performing the method recited in claim 17 (see Koenig, column 2, lines 42-46).

35. Regarding claim 32, Koenig and Hall teach:

A computer system having a processor, a memory and an operating environment, the computer system for performing the method recited in claim 17 (see Koenig, column 2, lines 42-46).

36. Regarding claim 33, Koenig and Hall teach:

A computer-readable medium having computer-executable modules for generating frame designs for manufacturing a vehicle (see Koenig, column 1, lines 50-61), the computer-executable modules comprising:

an interface module for obtaining a specification of one or more components to be mounted on a frame of a vehicle and for transmitting a frame design corresponding to a configuration of the components mounted on the frame of the vehicle (see Hall, column 6, lines 7-15);

a processing data module for storing processing data corresponding to each of the one or more components to be mounted on the frame of the vehicle (see Koenig, column 2, lines 43-46), wherein the processing data includes location information corresponding to a logical starting position for attempting to locate a component on the frame and a range of additional positions to locate the component and three-dimensional data corresponding to a tessellated representation of the component (see Koenig, column 6, lines 59-61); and

a configuration module for configuring a location for a selected component of the one or more components to be mounted on a frame of a vehicle based upon an interference check corresponding to comparison of a tessellated representation of the selected

component interferes with the tessellated representation of any other components already configured to the frame (see Hall, column 4, lines 1-3).

37. Regarding claim 34, Koenig and Hall teach:

The computer-readable medium as recited in claim 33, wherein the interference check includes iteratively comparing whether any tessellated planes within the three-dimensional data of the selected component intersect with any tessellated planes with the three-dimensional data of any components already configured to the frame (see Hall, column 7, lines 1-9; Hall, column 7, lines 32-42).

38. Regarding claim 35, Koenig and Hall teach:

The computer-readable medium as recited in claim 33, wherein the logical starting position corresponds to a dimensional measurement relative to the frame (see Hall, lines 62-67).

39. Regarding claim 36, Koenig and Hall teach:

The computer-readable medium as recited in claim 33, wherein the logical starting position corresponds to a dimensional measurement relative to another component (see Hall, column 8, lines 1-9).

40. Regarding claim 37, Koenig and Hall teach:

The computer-readable medium as recited in claim 33, wherein the range of additional positions to locate the component includes a maximum dimensional measurement in a first direction from the logical starting position (see Hall, column 7, lines 62-67).

41. Regarding claim 38, Koenig and Hall teach:

The computer-readable medium as recited in claim 37, wherein the range of additional positions to locate the component includes a maximum dimensional measurement in a second direction from the logical starting position (see Hall, column 7, lines 62-67).

42. Regarding claim 39, Koenig and Hall teach:

The computer-readable medium as recited in claim 33, wherein the configuration module is further operable for configuring a new position for the selected component based upon determining whether the selected component fits with any existing holes on the frame for attaching a component (see Hall Figure 2, column 7).

43. Regarding claim 40, Koenig and Hall teach:

The computer-readable medium as recited in claim 39, wherein configuring a new position for the selected component based upon determining whether the selected component fits with any existing holes on the frame for attaching a component includes:

determining whether the selected component fits with any existing holes on the frame for attaching a component at the previously configured position (see Hall Figure 2, column 7);

if the selected component fits with any existing holes on the frame for attaching a component, determining whether the tessellated representation of the selected component located at a position corresponding to a matching hole interferes with the tessellated representation of any other components already configured to the frame (see Hall, column 7, lines 32-41);

if no interference occurs, configuring the position of the component as the position corresponding to a matching hole (see Hall, column 8, lines 1-9).

44. Claims 11, 12, 14, 28-30, 41, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,729,463 Koenig et al. (hereinafter Koenig) in view of US Patent 6,487,525, Hall et al. (hereinafter Hall), further in view of US Patent 6,453,209, Hill et al. (hereinafter Hill)

45. Koenig and Hall teach a system for designing a vehicle body using tessellated representations of components and location information (see column 1). However, Koenig and Hall fail to teach traversing a tree structure to select the next course of action, or the usage of generating a text file.

46. Hill teaches method for the design and manufacturing of vehicles using process data structures (see Hill, column 1, lines 43-49) and textual descriptions of instructions (see Hill, column 4, lines 32-35).

47. Koenig and Hill are analogous art because they are both related to the design of vehicles and/or automotive components.

48. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the system for designing a vehicle body of Koenig and Hall with the data structures and text files of Hill motivated by the desire to "indicate the assembly steps...contained within the manufacturing data structure" (see column 1), and to "provide specific instructions for personnel" (see column 4).

49. Regarding claim 11, Koenig, Hall, and Hill teach:

The method as recited in claim 1, wherein obtaining processing data corresponding to one or more components includes traversing a tree structure to select a set of processing data (see Hill, Figure 3).

50. Regarding claim 12, Koenig, Hall, and Hill teach:

The method as recited in claim 11, wherein the tree structure includes two or more sets of processing data for a selected component and wherein setting a next position in the range of additional positions defined in the processing data includes selecting a new set of processing data and obtaining a next position (see Hill, column 1, lines 43-49).

51. Regarding claim 14, Koenig, Hall, and Hill teach:

The method as recited in claim 1, wherein generating a frame design corresponding to the configured positions for each of the one or more components includes generating a textual file of the frame design (see Hill, column 4, lines 32-35).

52. Regarding claim 28, Koenig, Hall, and Hill teach:

The method as recited in claim 17, wherein generating a frame design corresponding to the configured positions for each of the one or more components includes generating a textual file of the frame design (see Hill, column 4, lines 32-35).

53. Regarding claim 29, Koenig, Hall, and Hill teach:

The method as recited in claim 17, wherein obtaining processing data corresponding to one or more components includes traversing a tree structure to select a set of processing data (see Hill, Figure 3).

54. Regarding claim 30, Koenig, Hall, and Hill teach:

The method as recited in claim 29, wherein the tree structure includes two or more sets of processing data for a selected component and wherein setting a next position in the range of additional positions defined in the processing data includes selecting a new set of processing data and obtaining a next position (see Hill, column 1, lines 43-49).

55. Regarding claim 41, Koenig, Hall, and Hill teach:

The computer-readable medium as recited in claim 33, wherein the processing module selects the processing data by traversing a tree structure (see Hill, Figure 3).

56. Regarding claim 42, Koenig, Hall, and Hill teach:

The computer-readable medium as recited in claim 41, wherein the tree structure includes two or more set of processing data for a selected component and wherein the configuration module selects a next position in the range of additional positions defined in the processing data by selecting a new set of processing data from the processing module and obtaining a next position for the component from the new set of processing data (see Hill, column 1, lines 3-49).

Additional References

57. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

58. US Patent 6,090,148: A computer based system and method for designing an automotive vehicle orients an occupant representation, in electronic form, with respect to a three-dimensional electronic representation of a portion of the vehicle. At least one

vehicle system is represented, also in electronic form, with respect to a common reference point.

59. US Patent 6,081,654: An interactive method and system for designing a door system for an automotive vehicle without the necessity of building a prototype.

60. US Patent 6,647,306: An interference removal system is provided for determining the possible removal of a component from an assembly where the component to be removed is in an environment including other components that interfere with its removal. The system uses dimensional data to define the removal component and its environment including other components.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nithya Janakiraman whose telephone number is 571-270-1003. The examiner can normally be reached on Monday-Thursday, 8:00am-5:00pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached on (571)272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NJ

3/2/07

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